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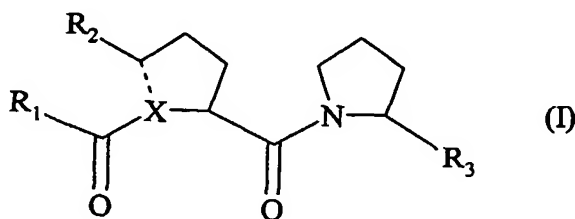
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOUNDS HAVING PROLYL OLIGOPEPTIDASE INHIBITORY ACTIVITY



(57) Abstract: The invention provides a compound of formula (I), wherein in the formula X, R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> are as defined in claim 1, or a pharmaceutically acceptable salt or ester thereof, useful as a prolyl oligopeptidase inhibitor. The compounds of formula (I) can be used for the treatment of diseases or conditions where prolyl oligopeptidase inhibitors are indicated to be effective, for example for the treatment of neurodegenerative diseases, such as Alzheimer's disease and senile dementia

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/FI2004/000001

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D207/16 C07D295/18 A61K31/401 A61K31/4025 A61K31/40

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 536 399 A (ZERIA PHARM CO LTD) 14 April 1993 (1993-04-14) examples 6,11,17,23,24,26 pages 1-2	1-4,8-15
X	EP 0 201 741 A (SUNTORY LTD) 20 November 1986 (1986-11-20) page 1 page 5 - page 6	1-4,8-15
X	EP 0 232 849 A (SUNTORY LTD) 19 August 1987 (1987-08-19) table 2 claims 4,5	1-4,8-15

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>WALLEN, ERIK A. A. ET AL:  "Conformationally rigid  N-acyl-5-alkyl-1-prolyl-pyrrolidines as  prolyl oligopeptidase inhibitors"  BIOORGANIC &amp; MEDICINAL CHEMISTRY, 11(17),  3611-3619 CODEN: BMECEP; ISSN: 0968-0896,  15 August 2003 (2003-08-15), XP002286663  page 1  examples 3e-3i; table I</p>	1-4,8-15
X	<p>US 4 483 991 A (FREED MEIER E)  20 November 1984 (1984-11-20)  column 2; examples 4,5</p>	1-4,8
X	<p>DATABASE CAPLUS 'Online!  CHEMICAL ABSTRACTS SERVICE, COLUMBUS,  OHIO, US;  FONTANELLA, L. ET AL: "Synthesis of 2,5-  and 2,3,5-substituted  hexahydropyrrolo[1,2-c]imidazolones"  XP002286664  retrieved from STN  Database accession no. 1973:478688  CAS RN: 43092-48-4; 43092-50-8  abstract  -&amp; FARMACO, EDIZIONE SCIENTIFICA, 28(6),  463-77 CODEN: FRPSAX; ISSN: 0430-0920,  1973, XP001189677  examples Vb,Vib</p>	1-4
X	<p>EP 0 915 088 A (HOFFMANN LA ROCHE)  12 May 1999 (1999-05-12)  page 3, line 54  claim 1, formula (I-B)  example 21d</p>	1-4,8-15
X	<p>WO 91/18891 A (PFIZER)  12 December 1991 (1991-12-12)  claims 1,6-11  examples 39-41</p>	1-15

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/FI2004/000001

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 13-15  
because they relate to subject matter not required to be searched by this Authority, namely:  
Although claims 13-15 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.1

Although claims 13-15 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/FI2004/000001

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